Application No. 10/679,240

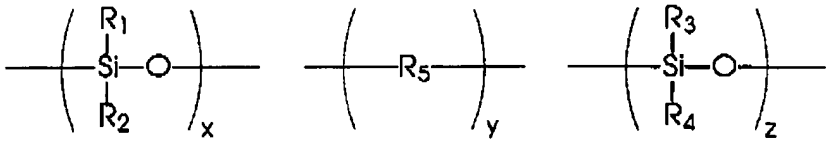
AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings of claims in the application:

LISTING OF CLAIMS:

1 to 44. (Cancelled)

45. (Original) A printing process which comprises (a) supplying an intermediate transfer material, said intermediate transfer material having a melting point of at least about 30°C, said intermediate transfer material having a melting point of no more than about 90°C; (b) applying a molten layer of said intermediate transfer material to an intermediate transfer member; (c) applying to the layer of intermediate transfer material a marking material in an imagewise pattern, thereby forming an image on the layer of molten intermediate transfer material; and (d) transferring the marking material from the intermediate transfer member to a final recording substrate, said intermediate transfer material comprising a silicone polymer containing monomers of the formula



wherein R_1 and R_2 each, independently of the other, are hydrogen

atoms, hydroxy groups, alkyl groups, aryl groups, arylalkyl groups, or alkylaryl groups, provided that at least one of R_1 and R_2 has at least about 12 carbon atoms, wherein R_1+R_2 have a total number of carbon atoms of no more than about 100, R_3 and R_4 each, independently of the other, are hydrogen atoms, hydroxy groups, alkyl groups, aryl groups, arylalkyl groups, or alkylaryl groups, wherein R_3+R_4 have a total number of carbon atoms of no more than about 20, R_5 is an alkylene group, an arylene group, an arylalkylene group, an alkylarylene group, and x, y, and z each, independently of the others, are integers representing the number of repeat monomer units, wherein either (a) x is at least about 1 and wherein y and z each may be 0 but may also be greater than 0, provided that at least 2 monomer units are present in the silicone polymer, or (b) x may be 0 but may also be greater than 0, y is at least 1, and z is at least 1, wherein the monomers can be either directly bonded to each other or bonded to each other through spacer groups.

46. (Original) A process according to claim 45 wherein at least one of R_1 and R_2 has at least about 28 carbon atoms.

47. (Original) A process according to claim 45 wherein at least one of R_1 and R_2 has from about 12 carbon atoms to about 28 carbon atoms.

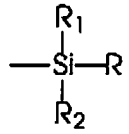
48. (Original) A process according to claim 45 wherein the total number of carbon atoms in R_3+R_4 is no more than about 10.

49. (Original) A process according to claim 45 wherein the total number of carbon atoms in R_3+R_4 is no more than about 2.

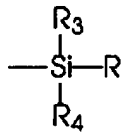
50. (Original) A process according to claim 45 wherein R_1 and R_2 each, independently of the other, are hydrogen atoms, hydroxy groups, unsubstituted alkyl groups, substituted alkyl groups, unsubstituted aryl groups, substituted aryl groups, unsubstituted arylalkyl groups, substituted arylalkyl groups, unsubstituted alkylaryl groups, or substituted alkylaryl groups, R_3 and R_4 each, independently of the other, are hydrogen atoms, hydroxy groups, unsubstituted alkyl groups, substituted alkyl groups, unsubstituted aryl groups, substituted aryl groups, unsubstituted arylalkyl groups, substituted arylalkyl groups, unsubstituted alkylaryl groups, or substituted alkylaryl groups, and R_5 is an unsubstituted alkylene group, a substituted alkylene group, an unsubstituted arylene group, a substituted arylene group, an unsubstituted arylalkylene group, a substituted arylalkylene group, an unsubstituted alkylarylene group, or a substituted alkylarylene group.

51. (Original) A process according to claim 45 wherein R_1 and R_2 each, independently of the other, are hydrogen atoms, hydroxy groups, alkyl groups having no hetero atoms therein, alkyl groups having heteroatoms therein, aryl groups having no hetero atoms therein, aryl groups having hetero atoms therein, arylalkyl groups having no hetero atoms therein, arylalkyl groups having hetero atoms therein, alkylaryl groups having no hetero atoms therein, or alkylaryl groups having hetero atoms therein, R_3 and R_4 each, independently of the other, are hydrogen atoms, hydroxy groups, alkyl groups having no hetero atoms therein, alkyl groups having hetero atoms therein, aryl groups having no hetero atoms therein, aryl groups having hetero atoms therein, arylalkyl groups having no hetero atoms therein, arylalkyl groups having hetero atoms therein, alkylaryl groups having no hetero atoms therein, or alkylaryl groups having hetero atoms therein, and R_5 is an alkylene group having no hetero atoms therein, an alkylene group having hetero atoms therein, an arylene group having no hetero atoms therein, an arylene group having hetero atoms therein, an arylalkylene group having no hetero atoms therein, an arylalkylene group having hetero atoms therein, an alkylarylene group having no hetero atoms therein, or an alkylarylene group having hetero atoms therein.

52. (Original) A process according to claim 45 wherein the silicone polymer has terminal groups selected from the group consisting of (a) -H, (b) -OH, (c) $-OC_nH_{2n+1}$ wherein n is an integer of from 1 to about 20, (d) $-C_nH_{2n+1}$ wherein n is an integer of from 1 to about 20, (e) $-C_nH_{2n+1}OH$ wherein n is an integer of from 1 to about 20, (f) $-C_nH_{2n+1}NH_2$ wherein n is an integer of from 1 to about 20, (g)



groups wherein R is (I) $-C_nH_{2n+1}$ wherein n is an integer of from 1 to about 20, (II) $-C_nH_{2n+1}OH$ wherein n is an integer of from 1 to about 20, or (III) $C_nH_{2n+1}NH_2$ wherein n is an integer of from 1 to about 20, (h)

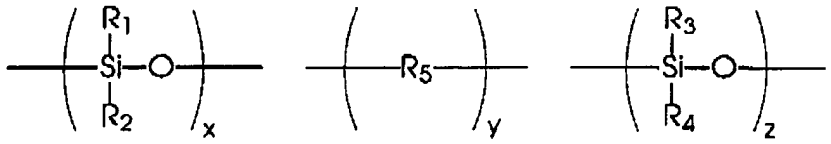


groups wherein R is (I) $-C_nH_{2n+1}$ wherein n is an integer of from 1 to about 20, (II) $-C_nH_{2n+1}OH$ wherein n is an integer of from 1 to about 20, or (III) $-C_nH_{2n+1}NH_2$ wherein n is an integer of from 1 to about 20, and (i) mixtures thereof.

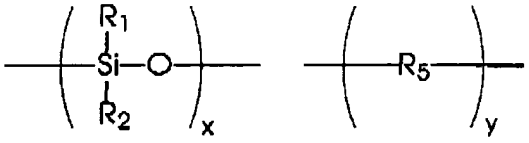
53. (Original) A process according to claim 45 wherein x is at least about 1 and wherein y and z each may be 0 but may also be greater than 0, provided that at least 2 monomer units are present in the silicone polymer.

54. (Original) A process according to claim 45 wherein x may be 0 but may also be greater than 0, y is at least 1, and z is at least 1.

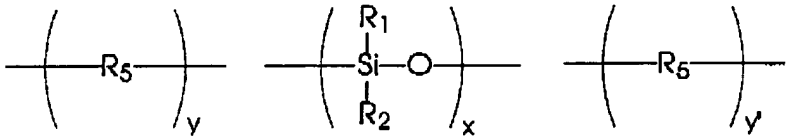
55. (Original) A process according to claim 45 wherein the polymer is selected from the group consisting of (a) block, random, and alternating copolymers containing monomers of the formula



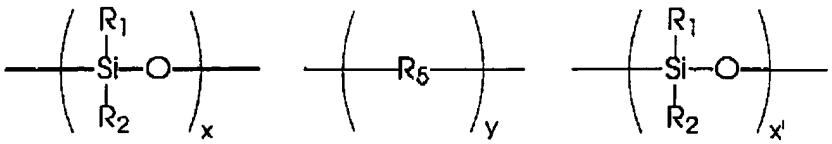
wherein the monomers can appear in any order and wherein x is at least 1 and y and z are each at least 1; (b) block, alternating, and random copolymers containing monomers of the formula



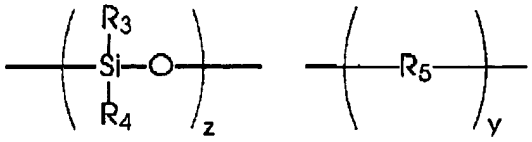
wherein x is at least 1 and y is at least 1; (c) block copolymers containing monomers of the formula



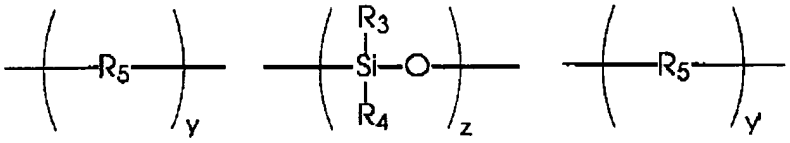
wherein the monomers are in blocks in the order shown and wherein x is at least 1 and y and y' are each at least 1; (d) block copolymers containing monomers of the formula



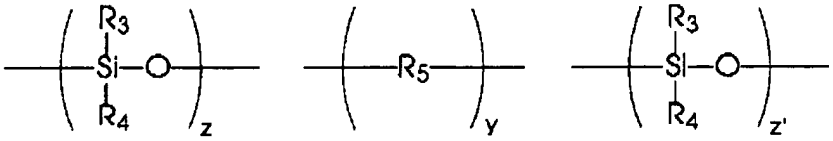
wherein the monomers are in blocks in the order shown and wherein x and x' are each at least 1 and y is at least 1; (e) block, alternating, and random copolymers containing monomers of the formula



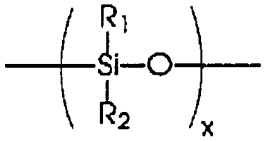
wherein y and z are each at least 1; (f) block copolymers containing monomers of the formula



wherein the monomers are in blocks in the order shown and wherein z, y, and y' are each at least 1; (g) block copolymers containing monomers of the formula



wherein the monomers are in blocks in the order shown and wherein z, z', and y are each at least 1; (h) homopolymers containing monomers of the formula



wherein x is at least 2; and (i) mixtures thereof.

56. (Original) A process according to claim 45 wherein at least some of the monomers are bonded to each other through spacer groups.

57. (Original) A process according to claim 56 wherein at least some of the spacer groups are of the formula

-R_7-

wherein R_7 is an alkylene group, an arylene group, an arylalkylene group, or an alkylarylene group.

58. (Original) A process according to claim 57 wherein R_7 is an unsubstituted alkylene group, an unsubstituted arylene group, an unsubstituted arylalkylene group, or an unsubstituted alkylarylene group.

59. (Original) A process according to claim 57 wherein R_7 is a substituted alkylene group, a substituted arylene group, a substituted arylalkylene group, or a substituted alkylarylene group.

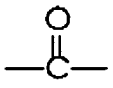
60. (Original) A process according to claim 57 wherein R_7 is an alkylene group having no hetero atoms therein, an arylene group having no hetero atoms therein, an arylalkylene group having no hetero atoms therein, or an alkylarylene group having no hetero atoms therein.

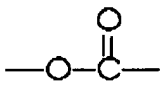
61. (Original) A process according to claim 57 wherein R_7 is an alkylene group having hetero atoms therein, an arylene group having hetero atoms therein, an arylalkylene group having heteroatoms therein, or an alkylarylene group having hetero atoms therein.

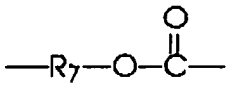
62. (Original) A process according to claim 56 wherein at least some of the spacer groups are of the formula

$$-CH_2-CH_2-CH_2-.$$

63. (Original) A process according to claim 56 wherein at least some of the spacer groups are of the formulae

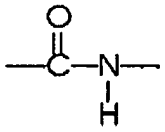


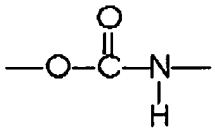


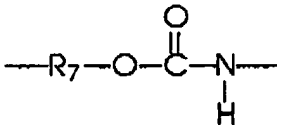


or mixtures thereof, wherein R_7 is an alkylene group, an arylene group, an arylalkylene group, or an alkylarylene group.

64. (Original) A process according to claim 56 wherein at least some of the spacer groups are of the formulae

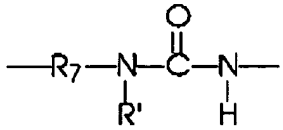






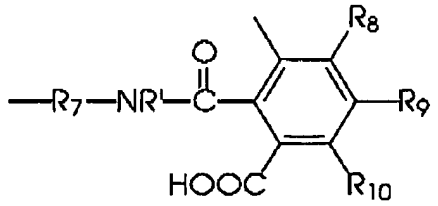
or mixtures thereof, wherein R_7 is an alkylene group, an arylene group, an arylalkylene group, or an alkylarylene group.

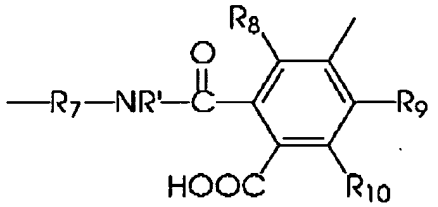
65. (Original) A process according to claim 56 wherein at least some of the spacer groups are of the formula

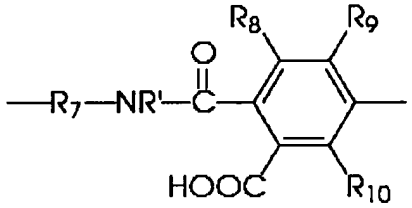


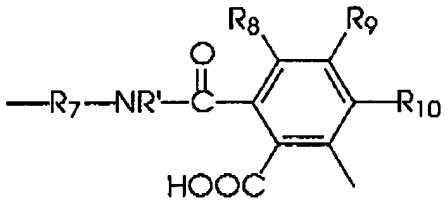
wherein R_7 is an alkylene group, an arylene group, an arylalkylene group, or an alkylarylene group and wherein R' is an alkyl group, an aryl group, an arylalkyl group, or an alkylaryl group.

66. (Original) A process according to claim 56 wherein at least some of the spacer groups are of the formulae





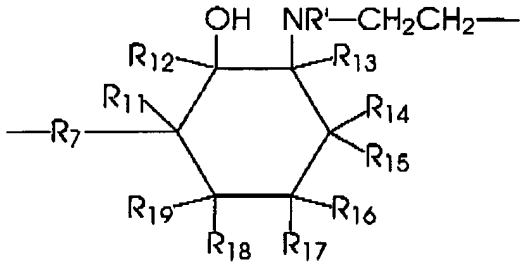




or mixtures thereof, wherein R_7 is an alkylene group, an arylene group, an arylalkylene group, or an alkylarylene group, R' is an alkyl group, an aryl group, an arylalkyl group, or an alkylaryl group, and R_8, R_9, and R_{10} each, independently of the others, are hydrogen atoms, hydroxy groups, halogen atoms, amine groups, imine groups, ammonium groups, azo

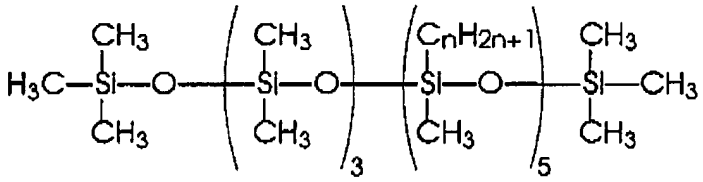
groups, cyano groups, pyridine groups, pyridinium groups, ether groups, aldehyde groups, ketone groups, carboxylic acid groups, ester groups, amide groups, carbonyl groups, thiocarbonyl groups, sulfate groups, sulfonate groups, sulfide groups, sulfoxide groups, phosphine groups, phosphonium groups, phosphate groups, nitrile groups, mercapto groups, nitro groups, sulfone groups, acyl groups, acid anhydride groups, cyanato groups, isocyanato groups, thiocyanato groups, isothiocyanato groups, oxiran groups, alkyl groups, aryl groups, arylalkyl groups, or alkylaryl groups.

67. (Original) A process according to claim 56 wherein at least some of the spacer groups are of the formula

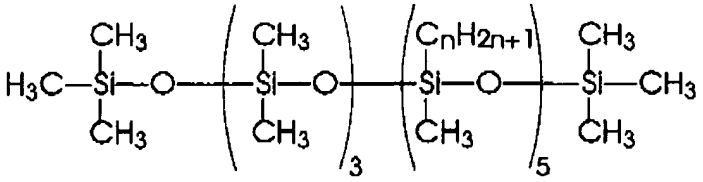


wherein R_7 is an alkylene group, an arylene group, an arylalkylene group, or an alkylarylene group, R' is an alkyl group, an aryl group, an arylalkyl group, or an alkylaryl group, and R_{11}, R_{12}, R_{13}, R_{14}, R_{15}, R_{16}, R_{17}, R_{18}, and R_{19} each, independently of the others, are hydrogen atoms, hydroxy groups, halogen atoms, amine groups, imine groups, ammonium groups, azo groups, cyano groups, pyridine groups, pyridinium groups, ether groups, aldehyde groups, ketone groups, carboxylic acid groups, ester groups, amide groups, carbonyl groups, thiocarbonyl groups, sulfate groups, sulfonate groups, sulfide groups, sulfoxide groups, phosphine groups, phosphonium groups, phosphate groups, nitrile groups, mercapto groups, nitro groups, sulfone groups, acyl groups, acid anhydride groups, cyanato groups, isocyanato groups, thiocyanato groups, isothiocyanato groups, oxiran groups, alkyl groups, aryl groups, arylalkyl groups, or alkylaryl groups.

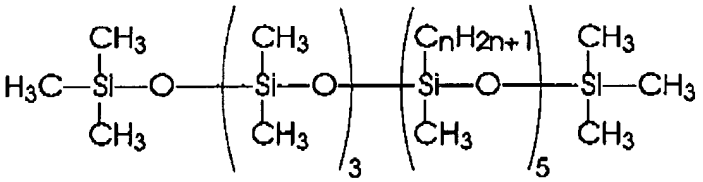
68. (Original) A process according to claim 45 wherein the silicone polymer is selected from the group consisting of (a) those of the formula



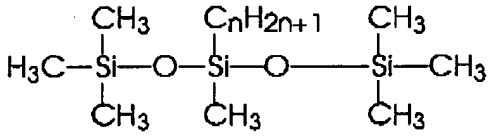
wherein n is from about 20 to about 24, (b) those of the formula



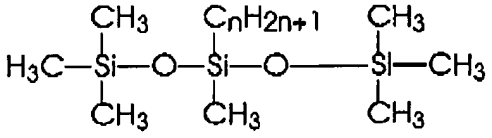
wherein n is from about 24 to about 28, (c) those of the formula



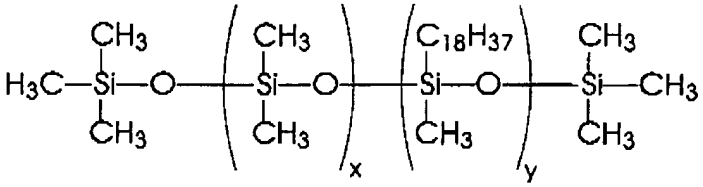
wherein n is 18, (d) those of the formula



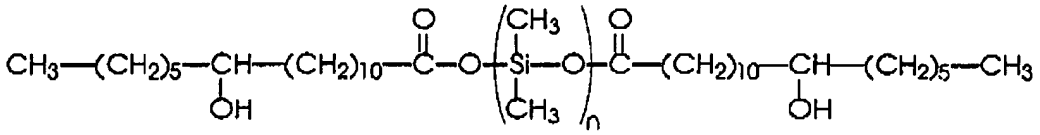
wherein n is from about 20 to about 24, (e) those of the formula



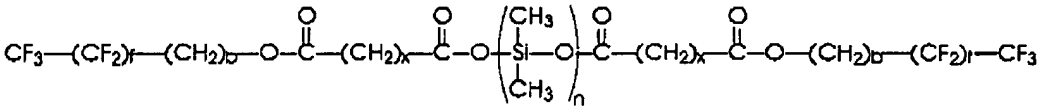
wherein n is from about 24 to about 28, (f) those of the formula



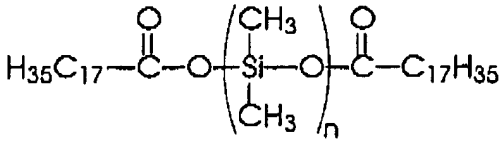
wherein x represents the number of polydimethylsiloxane repeat units and y represents the number of poly(methyl stearyl)siloxane repeat units, (g) those of the formula



wherein n is an integer of from 1 to about 50, (h) those of the formula



wherein n is an integer of from 1 to about 50, b is an integer representing the number of repeat $-CH_2-$ units, and f is an integer representing the number of repeat $-CF_2-$ units, (i) those of the formula



wherein n is an integer of from 1 to about 50, and (j) mixtures thereof.

69. (Original) A process according to claim 45 wherein the silicone polymer has a number average molecular weight of at least about 400.

70. (Original) A process according to claim 45 wherein the silicone polymer has a number average molecular weight of at least about 800.

71. (Original) A process according to claim 45 wherein the silicone polymer has a number average molecular weight of at least about 1,000.

72. (Original) A process according to claim 45 wherein the silicone polymer has a number average molecular weight of no more than about 40,000.

73. (Original) A process according to claim 45 wherein the silicone polymer has a number average molecular weight of no more than about 25,000.

74. (Original) A process according to claim 45 wherein the silicone polymer has a number average molecular weight of no more than about 8,000.

75. (Cancelled)

76. (Original) A process according to claim 45 wherein the intermediate transfer material has a melting point of at least about 35°C.

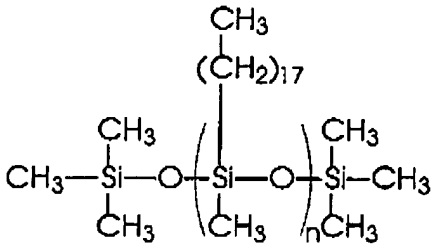
77. (Original) A process according to claim 45 wherein the intermediate transfer material has a melting point of at least about 40°C.

78. (Currently Amended) A process according to claim 45 wherein the intermediate transfer material has a melting point of no more than about ~~90~~50°C.

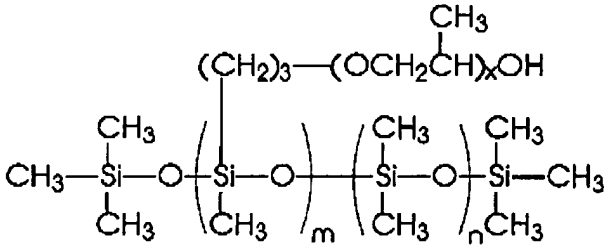
79. (Original) A process according to claim 45 wherein the intermediate transfer material has a melting point of no more than about 55°C.

80. (Original) A process according to claim 45 wherein the intermediate transfer material has a melting point of no more than about 45°C.

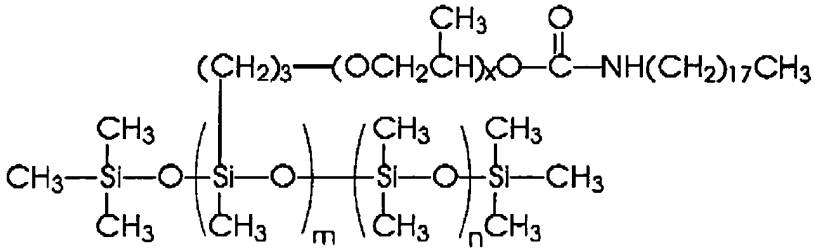
81. (Original) A process according to claim 45 wherein the silicone polymer is selected from the group consisting of (a) those of the formula



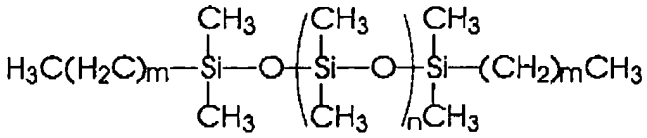
wherein n = 22 30; (b) those of the formula



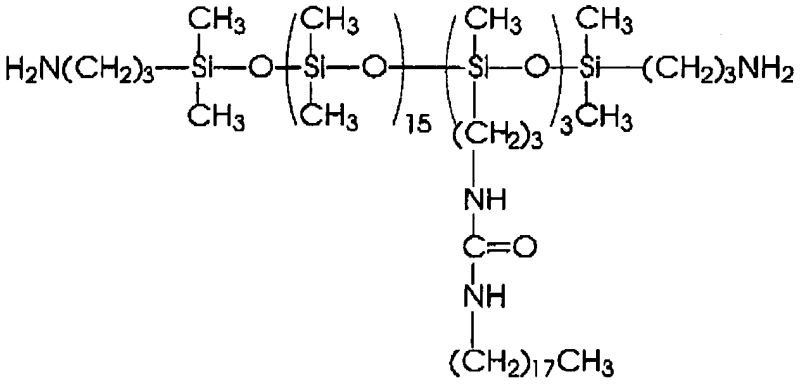
wherein m = 7 9, n = 17 19, and x has an average value of from about 1.4 to about 1.8; (c) those of the formula



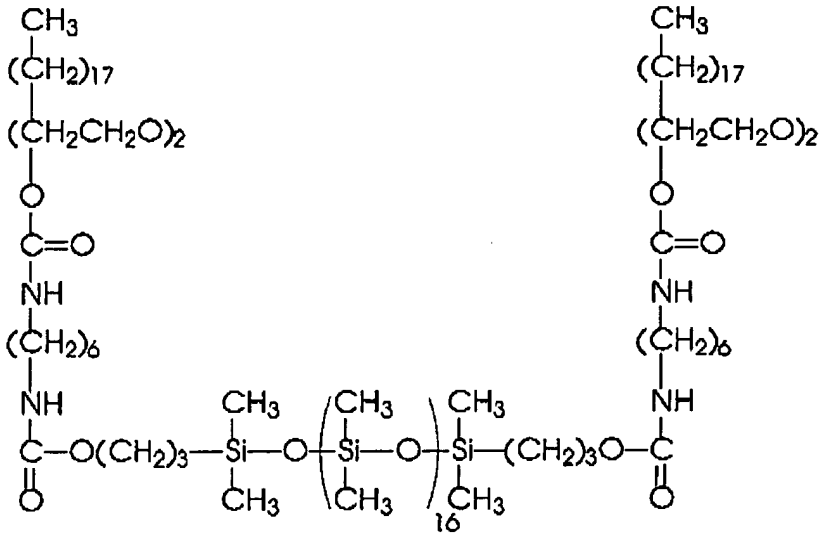
wherein m = 7 9, n = 17 19, and x has an average value of from about 1.4 to about 1.8; (d) those of the formula



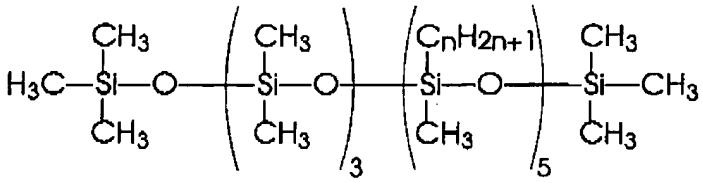
wherein m is from about 17 to about 21 and n = 3 5; (e) those of the formula



(f) those of the formula



(g) those of the formula



wherein n is from about 24 to about 28; and (h) mixtures thereof.

82. (Original) A process according to claim 45 wherein the intermediate transfer material further comprises at least one reactive material that can be crosslinked by application of ultraviolet radiation, infrared radiation, light in the visible wavelength range, e-beam radiation, X-ray radiation, heat, moisture, additional reactants, or combinations thereof.

83. (Original) A process according to claim 82 wherein the reactive material is present in the intermediate transfer material in an amount of at least about 0.1 percent by weight of the intermediate transfer material.

84. (Original) A process according to claim 45 wherein the intermediate transfer material further comprises small particles.

85. (Original) A process according to claim 84 wherein the small particles are present in the intermediate transfer material in an amount of at least about 0.1 percent by weight.

86. (Original) A process according to claim 84 wherein the small particles have an average particle diameter of at least about 0.1 micron.

87. (Original) A process according to claim 84 wherein the small particles have an average particle diameter of no more than about 80 microns.

88. (Cancelled)

89. (Original) A process according to claim 45 wherein the intermediate transfer material further comprises at least one material selected from UV absorbers, UV protectors, overcoat varnishes, viscosity modifiers, intermediate transfer oils, intermediate transfer waxes, antioxidants, plasticizers, tougheners, colorants, or mixtures thereof.

90. (Original) A process according to claim 45 wherein transferring the marking material from the intermediate transfer member to the final recording substrate additionally transfers a quantity of the intermediate transfer material to the final recording substrate as an outer layer thereon.

91. (Original) A process according to claim 90 wherein transfer of the intermediate transfer material to the final recording substrate occurs only in image areas of the final recording substrate.

92. (Original) A process according to claim 90 wherein transfer of the intermediate transfer material to the final recording substrate occurs both in image areas and in nonimage areas of the final recording substrate.

93. (Original) A process according to claim 90 wherein transfer of the intermediate transfer material to the final recording substrate enables control of the gloss characteristics of the final recording substrate.

94. (Original) A process according to claim 90 wherein transfer of the intermediate transfer material to the final recording substrate enables control of the transparency characteristics of the final recording substrate.